

(For Agency authorization purposes only)

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**Advisory Only**

**Approval Required**

## REGIONAL FARE COORDINATION SYSTEM

### CHANGE ORDER NO. 1

**CONTRACTOR:** ERG Transit Systems (USA) Inc.  
**CONTRACT NUMBER:** 229944

This Change Order to Contract #229944 ("Change Order") is executed as of 9/12/03 by and between ERG Transit Systems (USA) Inc, a California corporation and wholly owned subsidiary of ERG Limited, an Australian corporation, (hereinafter referred to as the "Contractor") and each of the following seven public transportation agencies (hereinafter referred to individually as an "Agency" or collectively as the "Agencies"):

1. Central Puget Sound Regional Transit Authority ("Sound Transit")
2. King County ("King County")
3. Kitsap County Public Transportation Benefit Area ("Kitsap Transit")
4. Pierce County Public Transportation Benefit Area ("Pierce Transit")
5. Snohomish County Public Transportation Benefit Area ("Community Transit")
6. City of Everett ("Everett")
7. State of Washington, acting through the Washington State Department of Transportation, Washington State Ferries Division ("WSF")

#### Background

- A. Effective April 29, 2003, each of the Agencies and the Contractor entered into Contract #229944 ("Contract") to implement a Regional Fare Coordination System ("RFC System") to establish a common fare system utilizing smart card technology. The Contractor is responsible for the development, implementation, operation and maintenance of the RFC System as specified in the Contract.

- B. The RFC Contract describes certain requirements for the optional design and production of a King County Radio Control Unit ("RCU") which will allow the RFC System to interface with King County's existing radio system.
- C. The Agencies and the Contractor desire to enter into this Change Order No. 1 to authorize the Contractor to proceed with Conceptual Design activities with respect to the RCU design and development. Capitalized terms used, but not defined, in this Change Order shall have the meaning given in the Contract.

### Agreements

The Agencies and the Contractor hereby agree to amend the Contract as follows:

#### **1. Scope of Work for Radio Control Unit**

Division III, Section 6.8.3 of the Contract is hereby amended to read as follows:

#### **6.8.3 King County Radio Control Unit (RCU) Development and Integration (Option)**

##### **6.8.3.1 RCU Conceptual Design**

- (a) The following tasks shall be completed by the Contractor as part of RCU Conceptual Design:

- |               |   |
|---------------|---|
| <b>Task 1</b> | Review existing RCU prototype documentation.  |
| <b>Task 2</b> | Conduct interviews and/or discussion groups with King County staff.   |
| <b>Task 3</b> | Conduct interviews with the person who developed the original RCU prototype.  |
| <b>Task 4</b> | Develop and submit a Conceptual Design for the RCU, including the deliverables provided in (c) below, to be reviewed in accordance with Section 3.I-27.5 of the Contract. |

- (b) The objective of the RCU Conceptual Design Review ("CDR") is to familiarize King County with the Contractor's intended design activities, resolve external interfaces, and provide the basis for proceeding to Preliminary Design. Additionally, it will provide a foundation for the Parties to commence negotiations regarding a future change order for full design and production of the RCU. The CDR shall be performed in accordance with the provisions of the Contract.

- (c) The Contractor shall submit the following deliverables as part of the Conceptual Design Review:

<b><i>Schedule Review</i></b>	Schedule compliance review and discussion of variances or delays.
<b><i>Functional Block Diagram</i></b>	Provide a functional block diagram of the system and equipment.
<b><i>Data Model</i></b>	Provide a top-level data model illustrating the major functional entities and relationships.
<b><i>Design Review Item</i></b>	Provide an outline of Design Review (DR) item 103.06 from Figure II-11.3 in the Contract.
<b><i>Narrative</i></b>	Provide a narrative description of the RCU as proposed by ERG, including components supplied by subcontractors.
<b><i>Interfaces</i></b>	Identify all interfaces between the RCU and other on-board devices, provide a schedule, and identify responsibilities for completion of detailed definition of the interfaces.
<b><i>King County Environment</i></b>	Confirm that ERG is familiar with the operations and maintenance environment for the RCU.
<b><i>Physical Dimensions</i></b>	Provide physical dimensions of the proposed RCU.
<b><i>Power Requirements</i></b>	Identify power and facility requirements for the RCU.
<b><i>Decisions</i></b>	Identify information needs and decisions required from King County.
<b><i>Problems</i></b>	Provide description of problem tracking, resolution and reporting process.
<b><i>Proposed Price</i></b>	Provide a proposed unit price for the RCU.

6.8.3.2 Design Completion and Development of RCU (if authorized by subsequent Change Order)

- (a) The Contractor shall develop a Radio Control Unit for King County (DR 103.06) to interface with on-board devices as illustrated in Section 6.III-4.1. The primary purpose of this device is to operate King County's legacy radio/AVL system. Additional information is contained in Appendix E, and prototype documentation (from a previous project) will be made available from King County at or prior to Conceptual Design.

- (b) The RCU shall enable existing King County Mobile Data Units (MDU) to interface to the legacy 450 MHz GE Delta-S radio and current model Motorola or Ericsson 450 MHz radios.
- (c) The Contractor shall develop a production version of the RCU based on a current King County prototype. Work activities shall include:
  - i. DDU-RCU design and software interfaces.
  - ii. Obtain test bench equipment (to be provided by KCM):
    - GE Delta-S radio
    - MDU (Mobile Data Unit)
    - Radio handset
    - PA microphone
    - Emergency alarm switch
    - Inside and outside public address speakers
  - iii. Confirm whether to use J1708 or other protocol for communications.
  - iv. Complete programming and software development to support required RCU functionality.
  - v. Test prototype on a bench
  - vi. Field test prototype. Test procedures shall be approved by the Contract Administrator.
  - vii. Manufacture production units.
  - viii. Conduct functional, performance, EMI, RFI and environmental testing.
- (d) The Contractor shall integrate the RCU with the DDU.
- (e) The DDU shall be designed to migrate from LIM to FIM integration without hardware changes or software upgrade.

Implementation shall be per the requirements of Section 6.II-11.1.2.3.

## **2. Review and Approval of Deliverables**

The review and approval of the deliverables set forth in Section 6.8.3.1(c) above shall be in accordance with Section 3.I-27.5 of the Contract.

## **3. Price and Payment**

The Agencies will pay the Contractor a "not-to-exceed" amount of \$26,795, plus reimbursable travel expenses allowable under Exhibit 9, Section I.A.1.c of the Contract, upon satisfactory completion of the work specified in Section 6.8.3.1. After the Agencies have received and accepted the deliverables described in Section 6.8.3.1(c), the Contractor will submit an invoice for its actual hourly and travel expenses plus the hourly billing of its Subconsultant as further described in Exhibit A and subject to the "not-to-exceed" amount above. Submittal of the invoice, supporting information and payment by the Agencies shall be in accordance with the applicable provisions of the Contract.

#### **4. Schedule**

The Conceptual Design Review tasks set forth in Section 6.8.3.1(a) will be performed in accordance with the following schedule:

**Task 1** Completion Date: \_\_\_\_\_ September 29, 2003 \_\_\_\_\_

**Task 2** Completion Date: \_\_\_\_\_ October 4, 2003 \_\_\_\_\_

**Task 3** Completion Date: \_\_\_\_\_ November 6, 2003 \_\_\_\_\_

**Task 4** Completion Date: \_\_\_\_\_ November 18, 2003 \_\_\_\_\_

Note: All dates assume September 15, NTP.

#### **5. NO MODIFICATIONS**

Except as expressly amended by this Change Order, the Contract remains in full force and effect.

#### **Attachments:**

Exhibit A - Estimated Task Hours & Budget

IN WITNESS WHEREOF, the parties hereto have executed this Change Order No. 1 to Contract #229944 as of the date set forth below its signature.

**ERG Transit Systems (USA) Inc.**

By: [Signature]  
Its: PROJECT MANAGER  
Date: SEPT. 4, 2003

**KING COUNTY**

By: [Signature]  
Its: Acting General Manager  
Date: Sept 12, 2003

***Additional Signatures when required by Interlocal Cooperation Agreement***

**Central Puget Sound Regional Transit Authority**

By: \_\_\_\_\_  
Its: \_\_\_\_\_  
Date: \_\_\_\_\_

**Snohomish County Public Transportation Benefit Area**

By: \_\_\_\_\_  
Its: \_\_\_\_\_  
Date: \_\_\_\_\_

**Pierce County Public Transportation Benefit Area**

By: \_\_\_\_\_  
Its: \_\_\_\_\_  
Date: \_\_\_\_\_

**Kitsap County Public Transportation Benefit Area**

By: \_\_\_\_\_  
Its: \_\_\_\_\_  
Date: \_\_\_\_\_

**Washington State Ferries, Washington State Department of Transportation**

By: \_\_\_\_\_  
Its: \_\_\_\_\_  
Date: \_\_\_\_\_

**City of Everett**

By: \_\_\_\_\_  
Its: \_\_\_\_\_  
Date: \_\_\_\_\_

# EXHIBIT A

## REGIONAL FARE COORDINATION SYSTEM Change Order No. 1 - Radio Control Unit

Vendor: ERG Transit Systems

Number of Hours

ERG				Subconsultant		Total
Technical Engineer	Engineering Manager			Subconsultant	Hours	
<b>Task 1: Radio Control Unit - Design &amp; Development</b>						
Task 1.A	14	4				18
Task 1.B	19					19
Task 1.C	19			NTI	40	59
Task 1.D	133	20				153
Task 1.E	17	4				21
TOTAL	202	28			40	270
				Subtotal Task 1		270
				Total Hours		270

Note: NTI = Northwest Technology Inc., Darryl Curtis, Communications Consultant.

## NOT-TO-EXCEED COSTS

ERG				Subconsultant		Total
Technical Engineer	Engineering Manager			Subconsultant	Hourly Rate	
<b>Task 1: Radio Control Unit - Design &amp; Development</b>					\$121.98	
Task 1.A	\$1,288	\$476				\$1,764
Task 1.B	\$1,748					\$1,748
Task 1.C	\$1,748			NTI	\$4,879.20	\$6,627
Task 1.D	\$12,236	\$2,380				\$14,616
Task 1.E	\$1,564	\$476				\$2,040
Total	\$18,584	\$3,332			\$4,879.20	\$26,795.20
				Subtotal Task 1		\$26,795.20
				Total Budget		\$26,795

Note: 1) ERG Hourly Rates per RFCS Contract, Exhibit 9, Project Staff Hourly Rate Table, page 24. 2) Travel expenses will be added per Travel Expense Guidelines, RFCS Contract Exhibit 9, I.A.1.c, Page 2. 3) Subconsultant Hourly Rate includes ERG 20% Administration and Reasonable Profit per FTA Circular 4220.1D, Section 5.2 Cost & Price Analysis.